

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the present application:

1-43. (Canceled)

44. (Currently amended) A processor comprising:

a plurality of functional units coupled to each other to execute operations defined from an instruction set of the processor, the plurality of functional units including an arithmetic logic unit (ALU) and a multiplier, the instruction set having a hierarchy of instruction levels, each of which can be used by a programmer to define instructions for the processor, the hierarchy of instruction levels including:

a RISC/CISC assembly code level, and

a ~~free pipeline~~second assembly code level which includes a plurality of instructions which are accessible to the programmer and which can explicitly reference individual outputs of any of the plurality of functional units.

45. (Previously presented) A processor as recited in claim 44, wherein the ~~free pipeline~~second assembly code level comprises a native machine language of the processor.

46. (Previously presented) A processor as recited in claim 44, wherein the plurality of hierarchical instruction levels further comprise a vector processing assembly code level.

47. (Previously presented) A processor as recited in claim 46, further comprising a plurality of special use control registers, wherein the plurality of hierarchical instruction levels further comprise a level for using the special use control registers.

48. (Canceled)

49. (Currently amended) A processor as recited in claim ~~48~~44, further comprising:  
a plurality of dedicated output buses, one for each of the functional units; and  
a plurality of bus registers, each coupled to store the output of only a corresponding one of the plurality of functional units and each coupled to only a corresponding one of the plurality of dedicated output buses.

50. (Previously presented) A processor as recited in claim 49, wherein each of the dedicated output buses is coupled to an input of at least one other of the plurality of functional units.

51-62. (Canceled)